

Three different tests were performed on the California Ozone Stations dataset and all three tests determined that the stations were clustered. The first test that was performed was the Average Nearest Neighbor. The Nearest Neighbor ratio for the California Ozone Stations was 0.79, indicating that the stations are statistically clustered. Next, the z-statistic was calculated. The resulting value was greater than 1.96, equaling 9.18, demonstrating a clustered network. Finally, Thiessen polygons were calculated for the stations, a distribution plot of the areas was generated, and the Kurtosis value was calculated. The Kurtosis was 18.8, once again showing a clustered network. Most areas were very small, with the outliers being the large areas, meaning that many points were in close proximity and the outliers had vast areas between themselves and their nearest neighbors. Below are the notes from running these tests, and the next page contains a 3d map showing the point density of the stations. There are four very large clusters, and very low density elsewhere in California.

Nearest Neighbor Ratio: 0.793513

Z-statistic info:

Mean: 1.4153846153846155

Std. Dev: 1.9275332981260311

Variance: 3.715384615384615087683

$z = 9.182030534968302$

The network is clustered

Thiessen Polygons:

Kurtosis: 18.8

# California Ozone Stations

## Legend

### Point Density

0.001 - 4.974

4.975 - 9.948

9.949 - 14.923

14.924 - 19.897

19.898 - 24.871

24.872 - 29.845

29.846 - 34.82

34.821 - 39.794

39.795 - 44.768

44.769 - 49.742

0 46.25 92.5 185 Miles

Created by: Jake Buday  
Date: 9/3/2024  
Projection: NAD 1983

Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NPS, Esri, CGIAR, USGS, Source:  
Airbus, USGS, NGA, NASA, CGIAR, NLS, OS, NMA, Geodatastyrelsen, GSA, GSI and the  
GIS User Community

# California Ozone Clustering

